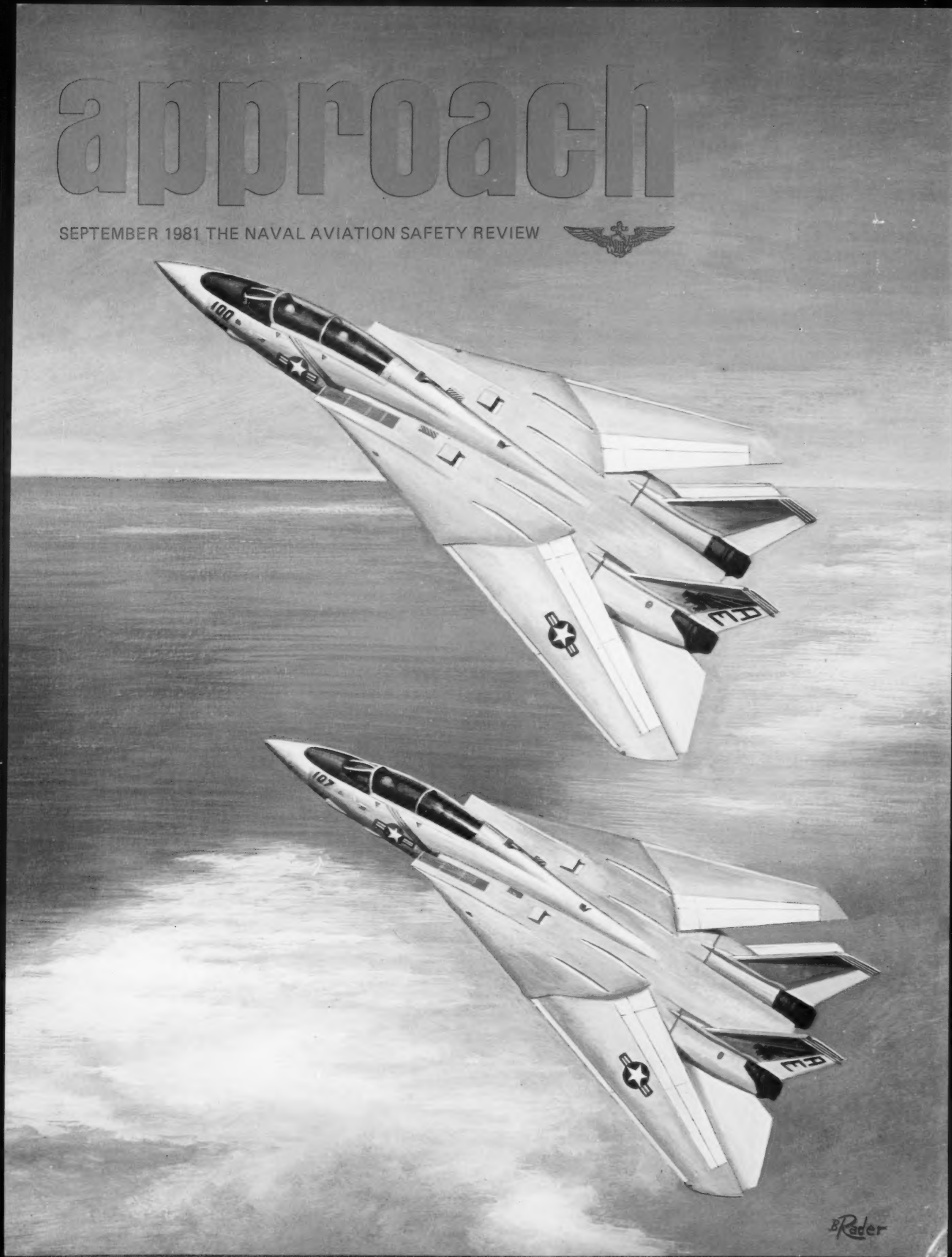
approach

SEPTEMBER 1981 THE NAVAL AVIATION SAFETY REVIEW



Dear Pilot:

When I start to fix an aircraft, I'm sort of like Jack Webb -- I need the facts. More often than not, you don't give them to me -- in writing, that is. The proper reporting of your inflight troubles will not only cut down my work but will give you a safer aircraft the next time you fly.

It seems some pilots figure a mechanic spends his time drinking coffee, changing minor parts, and writing "Ground Checks OK" on the VIDS/MAF. This is not true. Quite often, in fact, your grumbling about your aircraft's condition should be aimed at yourself. In some instances, brevity is OK, but the lack of details in many writeups is bad.

Like most mechanics, I want to do a good job, but without your help I don't have a chance. Without a few clues, I'm lost, and I get really frustrated going around in a circle trying to figure out where to start.

Perhaps a few simple guidelines will help straighten things out. How about these?

Write it up! Your talking about it with other pilots is fine, but tell me too.

Write in all the details. If it's about an engine, tell me the altitude, power settings, instrument readings, temperatures, and anything else you think of that will help me. If it's about a radio, tell me what channel, whether it's the receiver or transmitter, and what kind of noise it makes. Be specific -- don't be afraid to use more than one or two lines for the writeup. If you need more space, use an extra sheet. Tell me everything!

Tell me what checks you made and what the results were. You seldom ever quit using a piece of equipment without some effort to make it work or to find out what's wrong. Remember, I may not be able to duplicate your tests on the ground.

Keep your kneepad handy. Write down everything as it happens. You'd be amazed at the items you forget after you're on the ground and in a hurry to leave.

I hope I've made my point, sir. With your help, maybe I can get the Maintenance Officer off my back, give my ulcers a rest, and even quit beating my wife.

Thanks,
Joe Maintenanceman

P.S. -- If your handwriting is poor, **please print!**

• *The above "letter" is a reprint from a recent issue of WEEKLY SUMMARY. Because the problem described is almost universal, a reprint of this item was deemed appropriate. --Ed.*

Write it right!

Vol. 27 No. 3

approach

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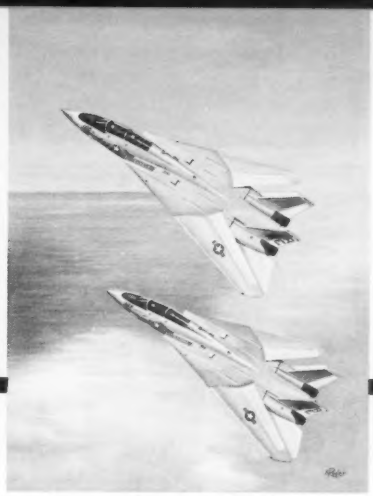

The F-14 Tomcats on the cover were painted by APPROACH artist Blake Rader.

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RADM T. C. Steele, Commander, Naval Safety Center

CAPT Henri B. Chase, Director, Aviation Safety Programs

CDR William J. Isenhour, Head, Safety Publications
LT Dale E. Smith, Editor
LT Colin Sargent, Publications Manager
Robert Trotter, Art Director
Russ T. Forbush, Helicopter Writer
Bill Peters, Fixed-Wing Writer
Blake Rader, Illustrator
Jack LaBar, Illustrator
Frank L. Smith, Graphics
PH3 Ronald K. Bellenot, Photographer
Catherine M. Wizieck, Editorial Assistant
Patricia A. Kinter, Type Composer
Robin Miller, Type Composer
Doris Sumner, Circulation

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TEAMWORK

By Russ Forbush
APPROACH Writer

WHETHER it's football, baseball, basketball, or any other sport, the key ingredient for success is a team effort by all members. Naval aviation is no different. To get one aircraft airborne requires complete coordination of a lot of people. Those who fly, maintain, handle, control, service, and train, plus those who provide flight, weather, and other briefings are all part of the team. And don't forget the managers, coaches, and captains – COs, XOs, department heads, flight leaders, section leaders, mission commanders, pilots in command, and supervisors at all levels within the various units. They are responsible for ensuring that teamwork is the name of the game – a mighty demanding task.

To illustrate the problems encountered when teamwork is lacking, we offer the following example:

An A-6E aircraft (hereafter called Hawk 101) launched from the carrier to conduct a late afternoon tanker mission with some F-4s. Both the pilot and the bombardier/ navigator were first tour aviators. The aircraft was configured with: Aero-1D droptanks on stations 1, 4, and 5, a D-704 store on station 3, and a *Standard Arm* training missile with an LAU-77 launcher on station 2. Gross weight for launch was computed to be 54,000 pounds.

During the 1820 launch, Hawk 101 descended from FL190 to 5,000 feet low holding to act as the recovery tanker. Between 1827 and 1831, the following conversation took place between Hawk 101, Departure Control, and the squadron CATCC representative (sqd rep):

Hawk 101: Departure, Hawk 101.

Departure: Hawk 101, go ahead.

Hawk 101: Roger, we've got a right oil low light – request immediate landing.

Departure: Hawk 101, Roger. Do you desire a rep?

Hawk 101: Negative.

Departure: Hawk 101, say again your emergency.

Hawk 101: Roger. We've got a right oil low light and request to land as soon as possible.

Sqd rep: 101, Departure.

Hawk 101: 101, go ahead.

Sqd rep: Twenty percent or 80 percent light?

Hawk 101: Twenty percent.

Sqd rep: Okay – recommend you think about shutting that one engine down and relighting it when you come back aboard, or relighting it when you start setting up for your approach. Be careful when you shut it down. Continued

Hawk 101: Okay. The oil pressure's good – the light has just gone out, but it was on for a good 3 minutes there.

Sqd rep: Okay, there's a note in NATOPS that says it's not real wise to go ahead and wait for the pressure to start dropping – you can do damage to the engine if you do that. Recommend while you're up there at altitude, go ahead and shut it down. If you need to, relight it either to tank somebody or come back aboard.

Hawk 101: Roger. Be advised the light has gone out.

Sqd rep: Understand that, just recommend you think about going ahead and shutting it down, and just be careful when you do that.

The crew followed the advice of the squadron rep and secured the starboard engine. The pilot did not retrim the rudder for the single-engine configuration, nor did he advise Departure that the aircraft was flying single-engine. The squadron rep did not specifically know the engine was secured, and when asked by the assistant air operations officer (manning the air operations desk at that time), he replied, "Securing the engine is a pilot option."

At 1910, Departure asked 101 if he were ready for recovery. The answer was affirmative. Departure then started vectoring the aircraft for handoff to Approach. When instructed to descend to approach altitude and dirty up, 101 responded, "Stand by, we're going to try and relight our other engine." This was the first transmission made by Hawk 101 that an engine had been secured. One minute later, Departure requested 101's altitude and gave them a descent clearance. Hawk 101 replied, "We're at Angels 4.5 and still attempting to relight the engine." Departure acknowledged and instructed, "Maintain Angels 2, report overhead." This was rogered by 101.

After a short interval, 101 requested that a squadron rep be provided. During the 3 minutes and 36 seconds between transmissions, the pilot attempted a minimum of four airstarts. When the rep came up on the radio, he requested a quick rundown on airstart attempts. Hawk 101 replied, "Circuit breakers checked, fuel master on, 20 percent rpm (230 to 250 KIAS), and both normal and airstart attempted with no light off." The pilot then requested that the rep run through the airstart checklist to make sure he got it right. The rep recommended that the pilot climb as necessary, speed up to 250 KIAS, and continue airstart attempts after rechecking the circuit breakers. Hawk 101 again requested that the rep run through one quick procedure.

During the next few minutes, several more airstarts were attempted without success. Hawk 101 decided to give it one more try and was advised by the rep to hold the airstart button down for as long as 30 seconds if he hadn't already tried that. There was "no joy," and 101 reported to Departure, "Ready to come aboard."

Departure vectored 101 to a final bearing at 13 nm and instructed the pilot to descend to 1,200 feet. The aircraft was configured with the right engine secured, ram air turbine out, external stores not jettisoned, and fuel dumped to 4,000 pounds. The aircraft was not trimmed for single-engine flight, and because of this, the AOA probe was blanked. The crew dirtied up the A-6 inside 13 miles to check single-engine slow flight characteristics at approach AOA. Landing checks were then completed. Following dirty up, the crew noted the AOA was unreliable, and this was reported to Approach Control.

The aircrew computed the approach speed at 115 knots, plus 5 knots required for a single-engine approach. The pilot reset the VGI to 3 degrees noseup. At this point, he was having difficulty attaining final bearing and remained right of course. The approach controller changed to a no-gyro approach at 8 miles due to heading problems. At 3 miles, the LSO passed ball control technique instructions (quick to correct a low, gentle with a high). At 2 miles, 101 was going above glidepath and crossing the centerline to the left of course. Paddles contact was made at 1½ miles and the LSO called 101 "high and slow." The B/N replied, "Negative AOA." After repeated calls to bring 101 down to glide slope and right to centerline, the LSO initiated a waveoff at about one-quarter mile.

The pilot went to military power on the left engine, checked speedbrakes still in, and increased VGI to 8-10 degrees. The aircraft flew over the platform at an estimated 150 feet MSL, in a visible left yaw, slightly left wing down, and climbing slowly. Once past the ship, the B/N called for a climb since the airspeed, altimeter, and VGI started decreasing. The B/N again called for a climb, then a stores jettison. Airspeed dropped below 115 knots with the aircraft descending. The pilot then raised the gear and jettisoned his stores. The aircraft continued to decelerate and descend. Ejection was initiated shortly thereafter. The pilot used the face curtain, the B/N the lower handle. Within 22 minutes, both uninjured crewmembers were rescued by helicopter and returned to the ship.

The above mishap occurred because several members of the team failed to carry out their responsibilities. The B/N had miscalculated aircraft gross weight by 2,333 pounds. This put the aircraft almost 2,000 pounds over maximum single-engine gross weight for landing when it waved off.

The pilot was not persistent in his original request for an immediate landing. Considering his limited experience and the fact that it was night, with no horizon and no divert field available, he should have pressed to come aboard while he was still flying with two engines.

The aircrew failed to execute proper airstart procedures by attempting 8-12 airstarts in a 16½-minute period. The

NATOPS Manual states that up to 60 seconds may be required to achieve lightoff and that up to 5 minutes should be allowed between a suspected wet start and any subsequent airstart attempt. When the engine was shut down, the pilot did not trim the aircraft for single-engine flight and allowed excessive yaw to blank the AOA probe.

The crew ignored a NATOPS recommendation to jettison stores prior to conducting a single-engine landing, and upon waveoff, the pilot overrotated the aircraft and entered a stall.

The squadron CATCC rep failed to consult the NATOPS Manual or maintenance prior to recommending the shutdown of the engine. He also neglected to ascertain the exact status of the engine and report this to air operations.

The LSOs were not aware Hawk 101 was single-engine until the aircraft was established on approach, and they were never informed which engine was shut down. Although Approach Control had been informed that 101 had an unreliable AOA indication at 8½ miles, the LSOs were not aware of this until the B/N reported "Negative AOA" at 1½ miles. The LSOs were never informed of aircraft fuel state and had to initiate an inquiry about aircraft configuration. This loss of a good airplane is a story of missed opportunities at every turn.

On the other side of the fence, most Navy flight evolutions are the epitome of professional teamwork. The next incident falls into this category:

An F-14A departed NAS South to conduct a 2-hour roundrobin instrument training flight. Upon completion of the flight, the *Tomcat* landed at an NAF for an RO2N. During the landing approach, the crew had experienced a momentary unsafe left landing gear indication which was corrected with minor yawing of the aircraft. A postflight inspection revealed no discrepancies in the landing gear systems.

On the day of departure for their home base, the aircrew arrived at the NAF about an hour prior to the scheduled takeoff time. As part of his brief, the pilot informed the RIO that they would closely monitor gear indications on takeoff, and if there were any unusual indications, they would cancel the roundrobin and proceed directly to NAS South. The crew filed a flight plan, received a weather brief, preflighted their bird, and manned up for the return roundrobin to NAS South.

After starting the engines and powering up, an IMU (inertial measuring unit) failure occurred. Since little navigation training could be accomplished without the IMU, the crew decided to cancel the roundrobin once the aircraft was airborne and head directly home. Departure cleared the *Tomcat* to climb unrestricted to FL240. The pilot made a no-flaps, Zone 5 takeoff with transition to a military power climb. When the gear handle was raised following takeoff, an unsafe left main gear up indication (barber pole) remained after the other two gear indicated up. The gear handle was then selected down, and an unsafe left main gear down indication was observed. Departure was notified of the problem, and the controller cleared the aircraft to level off at 10,000 feet MSL and then passed the F-14 off to Central Center. At this point, the pilot

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requested clearance for direct routing back to NAS South. This was approved.

The pilot had commenced yawing the aircraft when level at 10,000 feet and continued this action after initial contact with Central Center. He also applied both positive and negative G. No joy – the left main gear still had unsafe indications. The RIO then got out the PCL, and the crew precisely followed NATOPS procedures for getting the left gear down. This included blowing the gear down, with particular attention to holding the handle out. Again, no joy – the transition light was on and the indexers were flashing.

Upon arrival at NAS South, the pilot requested a tower fly-by. The tower operator confirmed that the left main gear was up and the door closed. While the crash crew rigged the runway for an arrested landing, the F-14 circled the field at 2,000 feet. The crew reread the PCL and went over the full NATOPS procedures for an unsafe gear indication with the squadron maintenance officer and the commanding officer via base radio. Other squadron members were contacted for assistance, but the gear would not come down. An arrested landing would have to be attempted.

Preparations were made to foam the runway as recommended by NATOPS. An F-14 qualified LSO (not from the same squadron) was in base operations at the time and offered his services. They were gratefully accepted.

En route to the runway, the LSO reviewed the F-14 PCL he had with him. He paid particular attention to the section on landing with one unsafe main gear. After getting set up, the LSO initiated communications with the *Tomcat* crew and the following items were discussed:

- Present fuel state – preferred trap state (agreed to be about 4,500 pounds)
- Use of the emergency blowdown system
- Positive and negative G
- Hook position
- Functioning of other systems
- Amount of time prior to trap
- Procedures on touchdown – airframe contact – securing engines
- Setting up the aircraft for the engagement
- Type of pattern to be flown
- Availability of the HUD flightpath marker
- Waveoff procedures

Approximately 15 minutes later, runway foaming was completed and the F-14 commenced its approach. The LSO confirmed that the runway was ready and told ground personnel that the aircraft would be landing soon. All emergency vehicles were positioned for the impending arrestment. The F-14 made a left downwind turn at normal pattern altitude. The *Tomcat* rolled into the groove, allowing for a straight-away that would be no longer than that required for a normal landing. There was no optical landing system available.

The aircraft's start position was a little low, and the pilot was so advised by the LSO. When the aircraft reached the middle position, the LSO called for "a little power." By the in-close position, the power had taken effect and a fast indexer came on steady, with the F-14 now up and on a normal glide slope. The LSO called for DLC, but the tailhook missed the pendant vertically by about one-half foot and dropped about 5 feet horizontally beyond the wire. Upon touchdown, the left wing dropped and, simultaneously, the left ventral fin struck the runway and came apart. The pilot activated the afterburners and the F-14 began to fly away with relatively little difficulty. Once established downwind for a second approach, the crew reported all systems were still functioning normally.

On the second approach, a slightly higher and deeper 90-degree position was flown by the pilot. At the 45-degree position, the F-14 was still high and an advisory call was made by the LSO. Soon afterward, the *Tomcat* was on glide slope, and the remainder of the approach was "on speed" and "on glide slope." The arrestment was normal, with the right main gear touching down just prior to the wire. A "good trap" call was made by the LSO, plus a call for engine shutdown. The aircraft slid straight down the runway and then made a slight veer left before coming to a complete stop. After a brief pause to ensure there was no fire, the aircrew egressed the *Tomcat* without incident. This mishap resulted from a material malfunction within the left main landing gear system.

Teamwork was prevalent throughout this emergency. Crew coordination was excellent. The PCL and NATOPS manual were used, and every possibility for lowering the left main gear was explored. Coordination between the LSO and the F-14 crew was thorough, and the pilot skillfully recovered from the first arrested landing attempt and then made a perfect trap on the second. Everyone involved in this emergency was part of the team, and each carried out his responsibilities in a professional manner.

No doubt there are a few cynics out there who might retort, "They were just doing the job they get paid for." And do you know, those people would be exactly right! When somebody does the job he gets paid for, he or she joins the other 98 percent who perform professionally day in and day out without much fanfare. Let's face it, it's the major mishap that bursts forth in the headlines. But there is one way to reward the team workers, and it takes little time and no money – ***recognition*** and a pat on the back for their total contribution to naval aviation. Think about that, supervisors. ◄

The Silver Lining

By LCDR Sid White II
VP-8

WHEN something "bad" happens, it gets everyone's attention. Things don't always go smoothly (and safely) without constant attention. Still, even dark clouds often have a *silver lining*. For example, a recent mishap in this squadron got everyone's attention and gave us some valuable lessons, too. The resulting damage was slight and could have been a lot worse. Considering it might have killed our proud safety record, it was too close for comfort! More important, it highlighted the *good* that even *bad* things can do for you.

The Crunch. Two operators in a Flight Line Maintenance Master (FLMM or, more familiarly, a "cherry picker") were doing postdeployment corrosion work on a P-3B. The cherry picker struck the P-3B elevator and caused minor sheet metal damage. Investigation disclosed training, equipment, procedural, and hazard awareness problems. Correcting any of these hazards ahead of time might have prevented the crunch.

We had failed the first test of a good safety program – the hazards were not caught early enough. The FLMM operators were working without a ground safety observer, but no one stopped them. They had no means of basket-to-tractor communications (no longer maintained on this equipment), but no action had been taken to compensate for this. Only one of them was currently licensed (though both had been trained on the FLMM). Neither they nor their supervisor thought this was very important. In short, there had been many chances to prevent the crunch, but we blew them.

The Silver Lining. All the best efforts of command, safety, and maintenance had apparently been for naught. We had a crunch anyway! It would have been easy to become disheartened or vindictive, but we didn't waste time crying (or yelling) over spilled milk. Sure, there was some chewing of posteriors right away, but it didn't take long for tempers to cool. In fact, even this initial negative reaction did some real good – it got everyone's attention for the positive action that followed.

The positive action included personnel retraining, increased supervisory attention, and checking other equipment for lurking hazards. We had failed the first test; we had a minor mishap because of an undetected and uncorrected hazard. We were not about to fail a second time by missing an opportunity to learn from our mistakes. The alternatives (finger pointing, excessive discipline, coverup, etc.) would have achieved little and may have harmed the total safety effort.

Positive Safety: The Total Effort. Positive promotion of safety has the distinct advantage of reinforcing the 99+ percent of your safety program that is working well. The idea is to make that 99+ percent grow. View problems as springboards for action, as *silver linings* in the darkest cloud. The crunch could have been a lot worse. The boss's response could have been a lot nastier. Ideally, neither could have actually happened. Our little failures gave us an opportunity to prevent bigger ones in the future. Don't misunderstand, acceptance of poor performance is absolutely unacceptable. The initial response by the command made that absolutely clear. On the other hand, this approach can be overdone and counterproductive. It stifles the voluntary attention and assistance of the 99+ percent of your people and only temporarily corrects the immediate problem. A positive, middle approach works better, longer, and helps you find and exploit the *silver lining.* ◄

FIGHTER

does it with two down

LTJG "Chuck" Lovelace (left) and LT "Sam" Bass (right).

and one up

IN the course of a Navy fighter pilot's career, he makes several thousand landings – normal landings, touch-and-go landings, FCLP landings, carrier landings, crosswind landings, and single-engine landings (mostly practice, but occasionally for real). All of these various types of landings require continual training, but except for when an honest-to-goodness emergency occurs, they fall into a routine category.

Upon rare occasions, however, there is a type of landing that a pilot is called upon to execute in which he has had no training whatsoever. That is the emergency situation when one of the main landing gear or nosewheel gear fails to lower. After following all the emergency NATOPS procedures for lowering a hung gear and meeting with no success, the pilot is faced with executing a nearly perfect landing during an evolution he has never confronted.

Recently, a fighter crew found themselves in this situation and reacted very professionally in landing their aircraft with one gear hung up.

• On 23 May 1981, following a late afternoon catapult launch off USS FORRESTAL, LTJG Chuck Lovelace and LT Sam Bass of VF-74 heard the air boss say **"Devil 200 . . . It looks like you lost one of your mainmounts."** A low altitude pass by the tower confirmed that the starboard wheel and axle had separated from the F-4J.

Anticipating a utility hydraulic failure, LTJG Lovelace checked the pneumatic pressure gauge and noted 1,500 psi – about half the normal reading. He extended the inflight refueling probe normally with the F-4 in the landing configuration. Almost immediately, it began to retract as the utility hydraulic pressure dropped. The probe was then extended and held out by the emergency pneumatic system.

A decision was made to fly to NAS Souda Bay, Crete, approximately 350 miles away. They were tanked overhead the CV, and a pathfinder/tanker KA-6 aircraft from VA-85 escorted the *Phantom*. Communications deteriorated when they were about 100 miles from FORRESTAL. An airborne E-2C from VAW-122 off USS INDEPENDENCE provided invaluable steering information and acted as a communications relay link between FORRESTAL and the divert aircraft. The response from the airfield was no less than outstanding. Upon request, they derigged the E-28 arresting gear and foamed the runway.

En route, the crew thoroughly discussed NATOPS procedures, the type of approach to be flown, and landing technique. All NATOPS procedures were carried out exactly, and LTJG Lovelace set up a very shallow approach. At 6 miles, he lowered his flaps using the emergency flap extension system. Aileron droop was selected at 2 miles, and the approach and landing were executed flawlessly. The F-4 touched down on the far left side of the runway at minimum flying speed. The starboard wing was held up as long as possible, then the mainmount stub was lowered onto the runway. Nosewheel steering and normal hydraulic braking were inoperative, so emergency pneumatic braking was used. A small fire broke out in the port brake but was put out when the crash crew arrived. The F-4 came to a stop on the runway centerline after traveling 8,000 feet.

The superb airmanship and professional handling of multiple emergencies by LTJG Lovelace and LT Bass prevented a major mishap and saved a valuable aircraft. ◄

A-4 Hypoxia incident

By Richard A. Eldridge
Contributing Editor

A two-plane section of A-4s was filed for a 2 hour and 4 minute flight. The entire route was over water. The leader of the flight opted to fly the wing position during the flight. (In this story, reference to No. 1 is the pilot who was actually flying lead; No. 2 is the designated leader of the flight but was flying the wing position.)

Fifty-eight minutes into the flight at FL330, No. 1 transmitted that he felt a little lightheaded. He also stated that his cabin altitude was a little high – 20,000 feet. Number 2 told him to check his oxygen mask tight and stated that the 20,000-foot altitude was no problem. He asked No. 1 how he felt and inquired about his oxygen. During this brief discussion, No. 1's voice was loud and clear, and his airwork was normal. A few seconds later, No. 2 noticed a 500-foot aircraft altitude loss. Because of this, he immediately queried No. 1 but received no answer.

The nose of No. 1's aircraft started up. Number 2 shouted over UHF to try and get No. 1's attention, but there was no response. Number 2 then shouted a direct order to level the aircraft and fly it right. The response was merely slurred speech. Next, he directed him to pull back on the power and ease the nose down. At this point, 61 minutes from takeoff and passing FL315, No. 1 rapidly accelerated away from No. 2.

From the subsequent report (No. 2 speaking): "In trail at military power, I repeatedly ordered him to pull power. No response. When his nose started up again, I began to yell at him as a drill instructor would. He responded loud and clear with 'That was not necessary.' Another 5 minutes of prompting got the flight in a controlled descent passing FL270 when No. 1 reported feeling much better and communications were greatly improved."

During this period, No. 2 asked No. 1 if he could find the green apple (emergency oxygen bottle). After he said "no," No. 2 did not pursue it any further because of the proximity of the emergency oxygen ring to the lower ejection handle. He then asked No. 1 if he wanted to relinquish the lead, but he said "no." Number 1 also complained of poor vision at this time. As they approached FL250, both aircraft had cabin altitudes of 12,000 feet. Number 1 was told to remove his mask, which he did. Subsequently, communications improved considerably and he reported feeling much better.

Number 1 retained the lead, but required No. 2's assistance in reporting their position, the new flight level, and the emergency to ATC. Although he still had a headache and tingling in his extremities, No. 1 demonstrated his recovery by improved speech and airmanship. An en route descent and section PAR were flown to an uneventful landing.

Following is No. 1's statement taken from the subsequent report: "Approximately 30 minutes into the flight, I felt a general state of fatigue but attributed it to the early morning wake-up (0530). I felt that I shook it off and made no comment to my section leader. It was after this that I had confusion in recalling exactly what happened and what was said. I remember commenting that my cabin altitude had risen from 17,000 at level-off to 20,000 and being told that it was nearly normal but to check my mask on tight. At this point, I suspected that hypoxia had started 28 minutes earlier. It was only after checking my mask on tight that I first became aware of some trouble in receiving a proper supply of oxygen. This also may have been going on for some time without my being aware of it.

"Along with the breathing problem, I also had a return of fatigue symptoms. The feeling of fatigue became much stronger, and I tried to communicate this to my lead, asking him to tell me of any unusual movements on my part. Events after this seemed to happen very quickly. I now noticed a strong effort was required to get oxygen, but I did not try to explain it. When my lead called me for a 500-foot altitude loss, I instinctively pulled back on the stick and looked down at the altimeter. I do not remember what it read, but I realized at

this point that I had extreme tunnel vision. I looked at the cabin altitude and read 22,000 feet. I remember thinking 'hypoxia – don't pass out.' I pushed the throttle full forward in an effort to get more cabin pressure. There was no change, so I tried again – still no change. I remember retarding the throttle but do not remember any use of the throttle again until leveling off at FL250. My section leader queried me as to how I felt. I keyed the mike but was unable to talk. I realized that I had to get to a lower altitude and pushed the stick forward. Concentration was so difficult and so limited that I could only monitor the altitude or the attitude indicator, but not both at the same time. The next radio contact I remember was '. . . and that is an order.' I replied with 'That was not necessary.' I remember no other radio calls until my section leader asked me if I could pull the green apple. It was at this point that I was feeling a return to useful consciousness. The whole time period from the loss of 500 feet until level-off at FL250 seemed to me to take less than 2 minutes."

A thorough investigation was made of the A-4's oxygen system. It was checked by squadron maintenance personnel as well as by IMA personnel. No discrepancies were found in either check. A LOX sample was tested and found to be uncontaminated. Later, the aircraft was flown to test the pressurization schedule. Specifications were met at FL260 and FL360. The FL330 cabin altitude read 19,000 feet – within limits. The flight surgeon did not uncover any significant aeromedical problems, and the pilot was returned to an up status.

During the safety/maintenance investigation, it was determined that the restricted oxygen flow described by the pilot could be duplicated exactly by unlocking the oxygen supply line quick-disconnect coupling assembly at the LOX converter. When the quick-disconnect was backed off 75 to 90 degrees, sufficient oxygen was available to initially satisfy the pilot that his system was working normally. However, oxygen was being supplied at reduced pressure and quantity. The potential for hypoxia is obvious.

The LOX converter had been serviced at the departure air station. Although the pilot stated that he had checked the LOX compartment for condition and security, it was determined that he was not familiar with the workings of the quick-disconnect coupling and preflighting the locking keys in place. Furthermore, an informal survey conducted by the safety officer among other pilots and crews indicated that a majority of those questioned were not familiar with those items.

The CO commented: "How many times have we been a wingman and passed the total responsibility of the flight to the pilot who has the lead? How many times have we been a wingman and 'joined up and shut up'? Here is one of the best examples of a pilot in command not relinquishing any of his responsibilities, even though he was the wingman on a routine overwater cross-country flight. How to revive a pilot with hypoxia in a single-seat aircraft is not covered in any NATOPS manual. He relied heavily on his experience, knowledge of the aircraft systems, and his physiology training to avert an aircraft accident."

VISUAL TRICKERY

By CAPT Richard E. Carlson, MC
VR-56

"I couldn't believe my eyes." "My eyes were playing tricks on me." We have all heard these sayings, maybe even said them to ourselves.

Our computer (brain) is truly encased in a black box (skull). Most of the programming comes from the visual system, with lesser amounts coming from hearing, smell, taste, and touch. To distrust information coming from the eyes is like swimming upstream. But we can be misled by our eyes, either by objective mechanisms known as illusions, or by subjective conflicts in seeing only what we want or expect to see.

There are occasions when safety experts deliberately fool us. Have you ever been driving on a dark country road and come to an otherwise dimly lit intersection except for a red traffic light? The tendency is to roll to a virtual stop long before the intersection. Why?

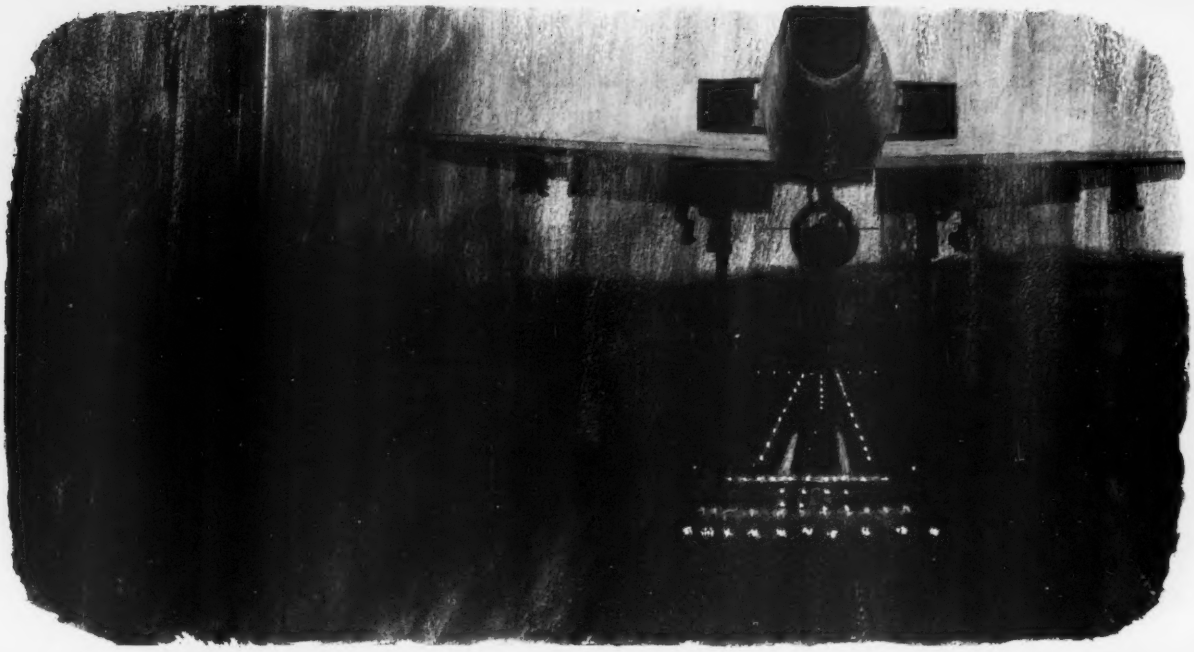
Well, we quickly learn what a red light should look like as the first car in line at an intersection. It has a certain image size and brightness. The highway experts make a highway red light much larger and brighter than one in the city. Therefore, the highway light will give us that image size and brightness at a distance farther from the intersection and, in the absence of any other visual clues, we are fooled and approach at a slower speed.

Some approaches to toll booths will have stripes painted across the road at constantly decreasing intervals which fool us into thinking we are accelerating, thereby urging us to increase braking. These tricks are used for our safety.

You have all seen the paragraph which you are allowed to read once, counting the Fs, or the line patterns where two lines look unequal or curved but are not. These tricks are used for our amusement. But "tricks" in aviation are neither safe nor amusing. They can hurt you.

A C-118 is approaching an air base far up North. The crew sights the airport, but the light rays have followed a curved pattern. A descent is made directly toward it, ignoring the minimum descent altitudes on the approach plate. The field disappears, obscured by the mountain which the crew was seeing around – the bent oar in the water illusion. Too late!

A P-3 crew is told of traffic, looks out and sees blinking red lights. "Rog, Tower, aircraft in sight; will pass below him."



Actually, the light is atop a radio tower on a bluff. Someone looks at the approach plate and catches on in time.

An international airliner lands on the wrong runway. Well, the pilot alighted upon his intended runway, just the wrong airport. His eyes saw *his* runway and overpowered the information being given to him by instruments he undoubtedly looked at but did not see.

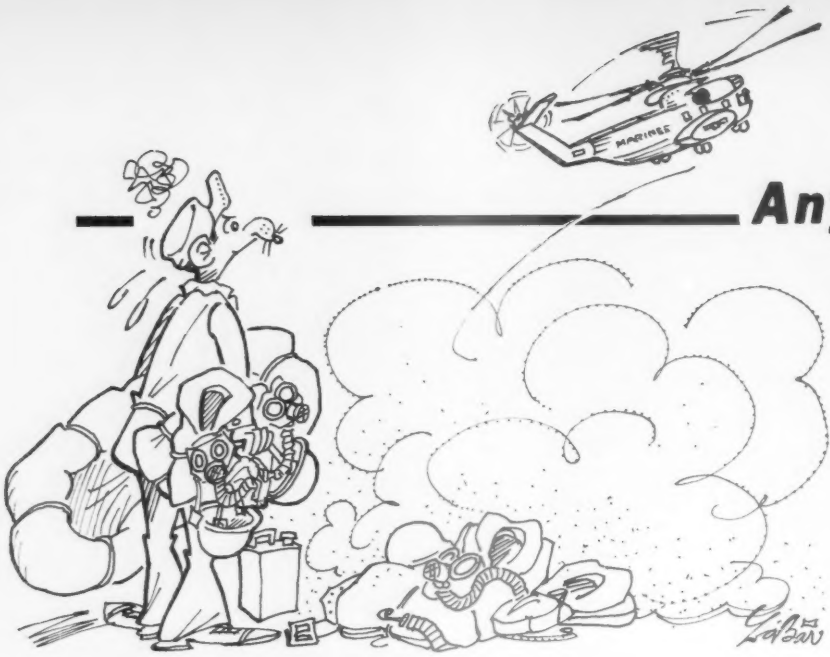
We will never know how many planes are flown into the water because of visual happenings outside the cockpit. Height above a calm sea is tough to resolve visually. Add to it the we-can't-be-that-low psychological mindset and the altimeters become shut out. Could anyone ignore a ground proximity warning device? You know they have!

Similar to the country red light, intense runway lights on a very wide runway on a dark night will make us want to flare too high.

VMC and IMC refer only to certain arbitrary weather conditions. Our aircraft should never be flown just visually. That is not to knock the head-outside-the-cockpit doctrine. But the instruments give much information which must correspond to what we think we see. Any discrepancies must be resolved. Most of the time, the instruments should be given the benefit of the doubt. They should be read as new information, not just glanced at to confirm what we already think we know.

On final, does the compass correspond to your selected runway heading? Does the fuel remaining as the flight progresses agree with your quick estimate as to what you will need to touchdown? Does the DME correspond to the approach plate for point of descent, regardless of visual sightings? Do you routinely look at the radar altimeter and believe it, realizing you may be fooled by an illusion? Do the airspeed, rate of descent, and power settings match your visual impressions of the proper glide slope? Being disoriented is no fun, but what may be much worse is being disoriented and not knowing it. Try to develop a habit pattern of challenging your modern day seat-of-the-pants concept of how you think things are by utilizing the many sources of corroborating evidence. Be prepared to alter your "mindset" when gauges start arguing with you.

Maybe "Doubting" Thomas, the Apostle, should be the patron saint of aviators! ◄



Anymouse

Supervisory SNAFU(s)

THE day began with a normal mission for the helo crew, with a pre-0600 brief by the ODO and delivery of the fragmentary orders to the HAC. The "frag sheet" revealed that, much to the HAC's surprise, he had already been briefed on the mission and that gas masks were required for his crew. After determining that gas masks were not available (and a soul-searching brief by the Wing Safety Officer concerning the inadvisability of carrying gas without proper protective gear in the aircraft), the HAC received a revised mission brief and dispatched his copilot to commence preflight of the aircraft.

The normal chain of events for a routine hop was next interrupted when the HAC received word that his internal range extension fuel tank contained contaminated fuel. This would necessitate defueling, purging, and refueling the tank. The necessary maintenance actions were completed with the exception of delivering a fuel sample to the squadron flight line prior to departure for a nearby USAF facility for a passenger and cargo pickup.

By the time the helo had arrived at the USAF air terminal, the fuel sample had been discovered missing back at MCAS Homeplate and the USAF ground control relayed a caution against ". . . using that internal fuel tank" and instructed the crew to contact their base immediately. Upon contacting Homeplate, the crew was advised of the procedural omission and agreed to return to base to deliver the onboard fuel sample.

After the aircraft was again airborne, a discussion between the HAC and the ranking passenger revealed a possibility that the aircraft load of smoke and flares was considered to fall under the broad category of "explosive ordnance" and, after a lengthy discussion, agreed that they were not violating SOP by returning to base prior to downloading their payload.

The fuel sample was deposited at the squadron line. The first mech was dispatched to obtain cranial helmets for all passengers, but failed to ensure that all passengers had approved flotation gear until the aircraft was again airborne and well established on the 40-mile *overwater* leg to their destination. The white-knuckled HAC ascertained that sufficient rafts to accommodate all personnel were aboard, and since he was accompanied by a wingman, continued to the uneventful completion of his assigned mission.

This flight fortunately did not terminate in a mishap, but the HAC did an in-depth assessment of the errors of omission in supervision that occurred at various levels within a single command. Except for the forgiving nature of the "Big MAG-in-the-sky," the errors of omission could have led to a disastrous mission. His assessment of those blatant errors are related verbatim.

- The ground mission commander had briefed a pilot whom he believed to be the pilot for this mission, but that pilot was not even in the flight or in the squadron area during the brief. *Supervisory – mission commander.*
- The frag sheet required gas masks for the flightcrews, but none were available. *Supervisory and aircrew equipment.*
- The HAC considered launching without gas masks (for the crew). *Supervisory – HAC.*
- The internal range extension fuel tank was contaminated with water. *Supervisory and facilities/maintenance.*
- The fuel sample from the internal tank was not left in the fuel sample box (prior to departure for the AFB). *Supervisory – HAC/crew chief.*
- The crew was not informed, nor did the frag sheet mention, that the mission required hauling explosive

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

ordnance and that they might not be able to land at MCAS Homebase. *Supervisory – squadron Ops.*

- The HAC landed at the MCAS, although he was unsure that action was allowed by SOP. *Supervisory – HAC.*
- There were no cranial helmets or (personal) flotation vests provided for the passengers. *Supervisory – Ops/Maint/HAC/crew chief.*

Supervisors can prevent this potentially hazardous situation from being repeated at a different time or a different place. Are you giving your pilots and flightcrews *all* of the information and material support they need to *successfully* complete their assigned missions?

HACmouse

Overseas Etiquette

IT was a sunny spring day for the VR-Det overseas, and the NAS Homeplate detachment was hosting a VR Det from NAS USA. The overseas deployment for the hosted unit was almost complete after providing valuable support for deployed Sixth Fleet units over a 2-week period.

Understandably, the visitors were anxious to expedite the final stages of their packup, but in the process chose to ignore signs (in two languages) prohibiting entry for unauthorized vehicles into the aircraft parking areas. Both military and local civilian authorities were known to be especially security-conscious, and the signs were explicit about the prohibition of all Rent-a-cars and POVs in the ramp areas. Despite this, the host line personnel were forced to approach the senior officer in the group offloading gear from the unauthorized vehicle to respectfully inform him of the violation. The senior officer became irate about being caught in the act, but this was to be only the first of a series of incidents.

Following another violation involving the same vehicle, departure time for the visitors approached. Their aircraft was positioned on the back line, and the engine start was accomplished without incident, although no lineman or fire guard was posted. Alerted by the aircraft starting noise, representatives of the host squadron ran toward the aircraft to render whatever assistance might be necessary, namely taxi direction through the heavily congested ramp area.

The pilot in command (PIC) apparently observed the lineman's signals but chose to ignore them and commenced taxiing without direction after about 2 minutes of poststart preparation. The lineman, for all of his good intentions, was immediately placed in a dangerous position due to exposure to aircraft exhaust as the big bird turned onto the taxiway.

It is strongly recommended that all pilots/aircrewmen take note and be aware of the local laws and restrictions governing flight lines they might be visiting on foreign soil. After all, we are their guests, and their rules are like ours, not to be bent or compromised. Above all, it behooves us all to be SAFE!!

Hostlinemouse

Among the items that were conspicuous in their absence was coordination with the Flight Operations Duty Officer and the Security Officer. They could have provided authorization for the vehicle into the aircraft parking ramp area or provided transportation in authorized base vehicles. There are very good reasons for the rules regarding transporting personal gear to and from transient aircraft, and the rules are for everyone! – Ed.

Do As I Say

BRONCO riders, when they're in the saddle, want to sit tall and show who's boss. That's OK for bronco busters, but what we don't need around our crowded air stations is the kind of *Bronco* pilot who tries to emulate the bronco buster.

It was hard to believe, but I watched an OV-10 *Bronco* taxi up alongside the hangar door and stop about 15 feet away. The props were generating all sorts of dust devils and could easily have blown loose parts/cowling doors, etc. all over the place. Who hopped out? The squadron heavy.

Naturally, no one dressed him down or chewed him out, but that was one of the worst examples of leadership I've seen in a long while. Does he think safety is only for JOs and the troops?

Concernedmouse

Recipe for a mishap

By Russ Forbush
APPROACH Writer

CHANGE the aircraft's mission at the last minute, speed up the operation, deviate from normal tiedown procedures, add a bit of confusion, throw in some questionable "can do" spirit, and what have you got? Enough ingredients for making nine helpings of "Stubby's foulup stew" (bound to give you indigestion). The recipe follows:

A shipboard-based CH-46D was scheduled for an 0815 launch to haul cargo to a nearby Navy airfield. (A second H-46 was to launch with passengers and accompany the first H-46 to the beach.) The cargo included a retrograde T-58-10 engine. The aircrew commenced preflighting the helo while it was still in the hangar of the mother ship. At about 0700, squadron detachment personnel spotted the H-46 on the flight deck for launch. Detachment SOP required the aircraft to be secured with a minimum of one axle tiedown and one chock per mainmount. Because of the sea state (8 to 10-foot swells) and winds in excess of 20 knots, the tower instructed flight deck personnel to secure the aircraft in accordance with MIM heavy weather procedures. This configuration consisted of two stubwing and two axle tiedowns per mainmount and two tiedowns on the nosewheel.

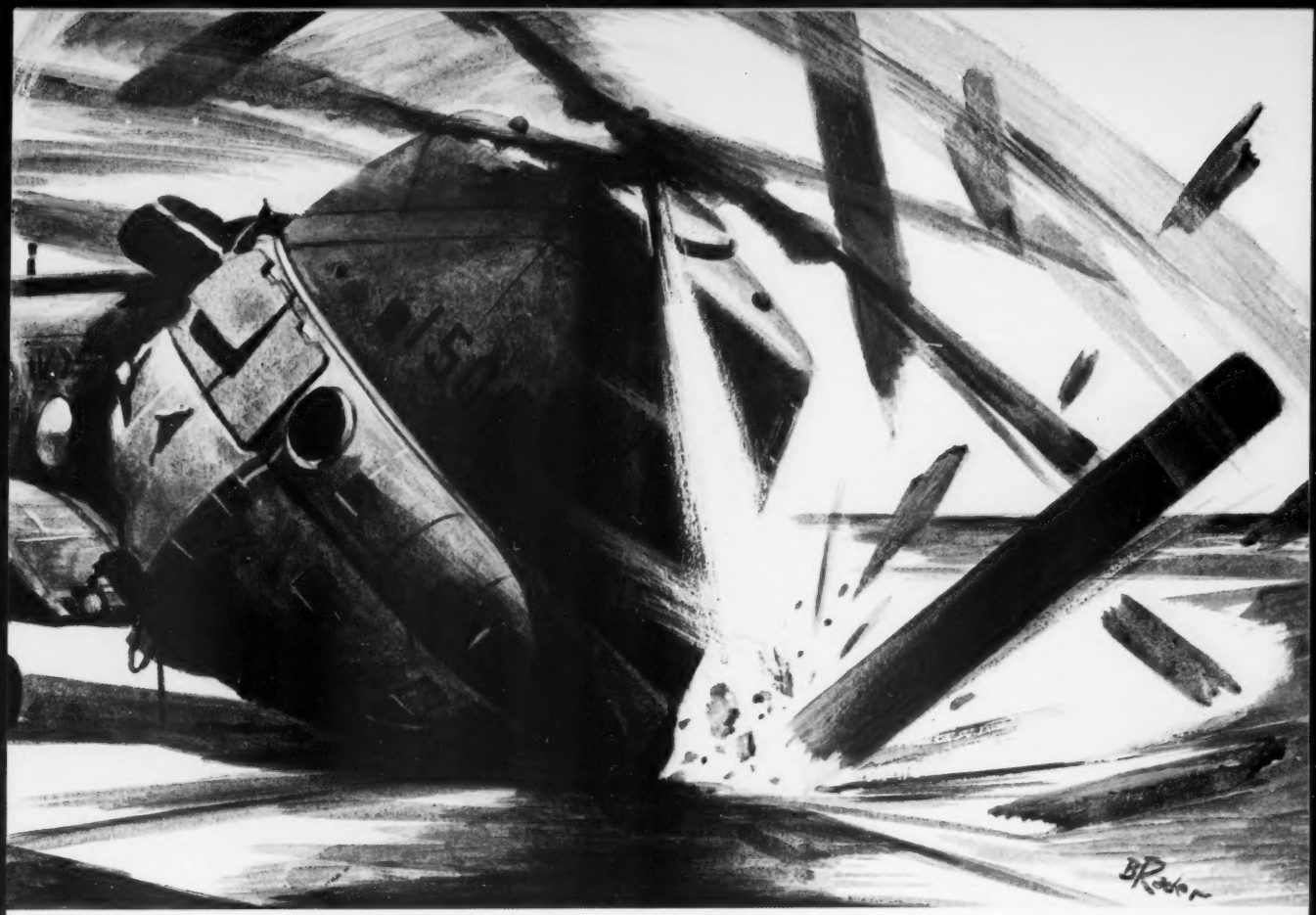
The aircrew completed their preflight while detachment personnel loaded the H-46 as required, except for the T-58 engine. Engine onload was delayed because the bridge would not authorize movement of the forklift from the main deck to the flight deck during the adverse weather conditions. Loading personnel then decided the engine could be loaded aboard with a pallet jack, and this action was commenced.

Flight quarters were called at 0745. Shortly thereafter, the OOD maneuvered to port to bring winds within engagement parameters and to decrease the severity of rolls the ship was experiencing. At this point, the HAC was briefing his crew on the flight to the beach when he was told to contact the tower. He was advised by the tower that the bridge wanted the launch expedited. The T-58 engine onload would be accomplished on a later flight.

A short time later, the bridge informed the tower to have the H-46 configured for passengers since this was the main mission and time was becoming a factor. This information was relayed to the flightcrew and flight deck personnel. By this time, the pilots had completed the NATOPS checklist through auxiliary power (APP) start and were up on UHF radio.

Now the "pot" begins to thicken! All flight deck and enlisted aircrew personnel, except the LSE and fire guard, began to offload cargo and reconfigure the aircraft to carry passengers. After engine start, the fire guard (also designated port chock and chain man) restowed the fire bottle in the hangar. The safety petty officer was also in the hangar, outfitting the passengers with flight gear.

When all cargo had been offloaded and the aircraft was ready to carry passengers, the pilot signaled the LSE for rotor engagement. The LSE gave a hold signal, having noted the tower status light was red. He then noticed the nosewheel chains had not been removed and signaled the chock and chain men to break them down prior to rotor engagement. The port chock and chain man, returning from the hangar, observed the signal and went forward to the nosewheel, removed the tiedowns, and carried them to the hangar.



The starboard chock and chain man had also moved forward to the nose. Both of these men were aware that the stubwing tiedowns needed to be removed from the mainmounts prior to engagement.

The pilot again signaled for rotor engagement and was given an amber light by the tower. Noting this, the LSE gave the pilot the engage signal. At this point, **nine** people involved in the operation had forgotten about the stubwing tiedowns. The pilot selected the rotor brake switch off, and the rotor brake light went out instantly. The arming lever was dropped and the engine condition levers (ECLs) were moved toward the fly position. Both engines were set at 70 percent N_g to ensure a smooth transition during engagement. At 50 percent N_f/N_r, the pilot called droop stops out, No. 1 boost pressure up, transmission pressure up, and caution panel lights out. At 65 percent N_f/N_r, the aircraft started to shuffle. The HAC was immediately aware of the problem since shuffling normally occurs between 30 and 40 percent N_r (prior to the droop stops releasing). During the third shuffle, the pilot began shutdown procedures by retarding the ECLs – just about the time the tower came up on UHF radio and told the crew to shut the bird down. The vibrations were so bad that, after having stopcocked the ECLs, the pilot could not position his hand to arm the rotor brake/blade fold arming lever. He was able to pull the fire T-handles. In a few seconds, the vibrations subsided somewhat, and he was able to arm and engage the rotor brake.

To the two crewmen in the cabin section, the rotor brake engagement initially appeared normal and they proceeded to commence their respective inspections. The first crewman disconnected from ICS and exited the H-46 to conduct an exterior walkaround. The second crewman began a cabin security check. As soon as the first crewman stepped to the ship's deck, he saw that the starboard stubwing was still tied down. From his position, he was unable to see that the port tiedowns were attached as well. He signaled to the LSE to shut down and ran toward the starboard stubwing.

The helicopter then began to oscillate with increased severity. One of the starboard stubwing tiedowns snapped and struck the cranial helmet of the port chock and chain man. The first crewman grabbed the man and dragged him under the nosewheel area for safety. Meanwhile, the second crewman was performing his cabin security checks in the aft transmission area when the oscillations began. The force of the oscillations tossed the man around the aft cabin section, but he managed to reach the last set of seats on the starboard side and hold on for dear life. As the oscillations began to subside, the second crewman became reoriented. He looked aft and saw fluid pouring from the engine bay doors and the aft pylon collapsing on the ramp. He then rushed forward to the

cockpit, grabbed both pilots, and told them to get out of the helicopter. Following this, he exited the aircraft, along with the copilot. The pilot was able to arm and select the rotor brake, and then he too left the H-46. The aircrew and LSE assembled under the forward fuselage area, near the nosewheel, to avoid flying debris. The total elapsed time from rotor brake release to the aircrew's departure from the aircraft was about 20 seconds.

The severity of the vibrations caused by the helicopter entering ground resonance separated the aft pylon from the main fuselage. The aft rotor blades splintered as they contacted the flight deck. One forward blade was shattered when it hit one of the aft blades due to the rotor heads' loss of synchronization. The tower officer activated the crash alarm and notified the bridge of the mishap. The crash crew responded immediately after the rotors coasted to a stop by laying a film of AFFF on the flight deck around the aft pylon area. Fortunately, no one was injured as a result of this mishap.

Although the pilot in command must take the ultimate responsibility for this mishap through his not ensuring the stubwing tiedowns were removed prior to rotor engagement, eight other personnel contributed to it: the copilot, both aircrewmen, the flight deck safety officer, the tower officer, the LSE, and both chock and chain men. Each of them earned a helping of "Stubby's foulup stew."

The possibility of a last minute change of mission is a way of life in naval aviation. When it occurs, all those involved with the operation must be exceptionally vigilant. This is especially true when all hands are hurrying to launch an aircraft. This mishap provides an excellent lesson to all aviation units: **mishap recipes are expensive; safe operating recipes are inexpensive and far more appetizing.** ◄

GIB's request

By LTJG Randy Tanaka, USN
VAQ-133

"SAY you can do it *blindfolded*, huh? Well, I'll bet you can't!" my buddy retorted.

"Sure I can," I thought. "I must have ridden my bike to and from school a million times, and I'm sure I can tell where I am if I'm blindfolded."

So off I went, packed on his bike, blindfolded and confident. I knew where we were by using sounds and other nonvisual perceptions. I knew we went by the park, over the bridge, past the grocery store, and were nearly hit by a car. I almost jumped off at that point!

A backseat ECMO flies "blindfolded" and depends on his pilot to tell him what's happening. With only an altimeter and clock in the aft cockpit, the Guy In Back depends on "front seat chatter" during normal operations and, especially, during crisis situations.

Had my buddy not said "Hold on!" at the squeal of the tires, I might have jumped off the bike and been hit. Had the pilot not said "I've got it!" I would have ejected.

(NMAC)

By Bill Peters
APPROACH Writer

A Near Midair Collision (NMAC) has occurred when the safety of an airborne aircraft is jeopardized by the hazardous proximity of another airborne aircraft not in the same flight. The term "hazardous proximity" is further defined in Section 317 of OPNAVINST 3750.6M. The following pair of incidents probably qualify as an undesirable first for having two NMACs within the shortest period of time.

An F-4S was at FL350 on an authorized instrument navigation flight from MCAS Southeast to North Central AFB. The *Phantom* pilot acquired visual contact with a civilian airliner at his 10 o'clock position, an estimated 2 to 3 miles away. After observing the airliner for 5 to 10 seconds, it became evident a collision course existed. The pilot initiated an immediate climb to FL360 as the RIO made the required calls to Center reporting the deviation from assigned altitude.

The fighter passed directly above the DC-9 with a vertical separation of about 400 feet. At no time did Center report the traffic, nor was any evasive maneuvering by the airliner observed by the fighter crew.

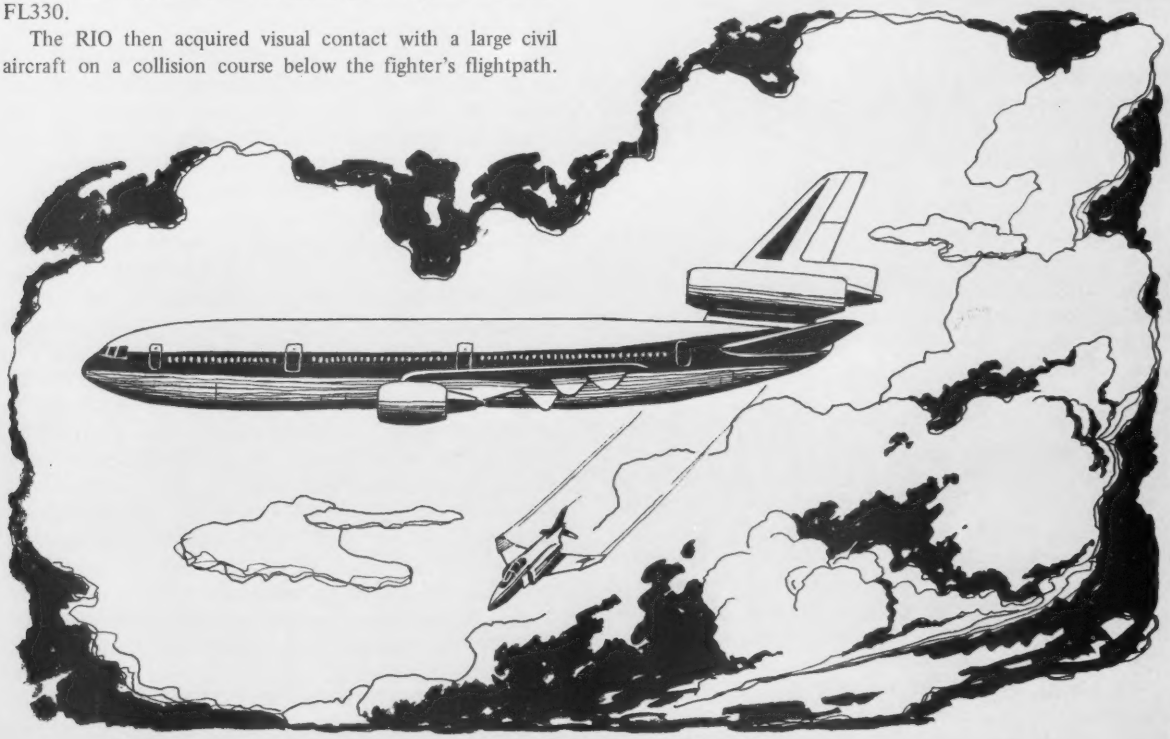
During the next 15 minutes, the F-4 notified Center of its return to assigned altitude, encountered high clouds at FL350, and rogered Center instructions to depart FL350 for FL330.

The RIO then acquired visual contact with a large civil aircraft on a collision course below the fighter's flightpath. The RIO called the airliner's clock position to his pilot, who was reducing power for descent. As the pilot eased the nose over, he also acquired a visual on a DC-10 materializing out of the high cirrus, crossing at 11 o'clock from left to right at about one-half mile. The pilot rapidly increased forward stick pressure and passed under the aft fuselage of the DC-10 with about 250 feet separation. Again, no evasive action by the airliner was observed, nor was a traffic advisory received from the same controlling center!

Who says lightning can't (almost) strike the same place twice? The remarks of the CO from the F-4 unit sum this up nicely: "The nearly tragic series of events detailed in this report emphasizes once again a basic flaw in the air traffic control system. The events leading to this incident had the makings of a catastrophic midair collision . . . "

For longevity in or out of controlled airspace, **keep that head on a swivel!** ◄

The F-4 involved in these incidents subsequently was found free of altimeter, transponder, or any other malfunctions. The FAA is investigating the air controller's and airline pilots' roles in these close calls. – Ed.



Hangover Horribleness

By LT John Gilbert, MSC
Naval Weapons Center
China Lake, CA

YEESH!!! What a rotten day!! The sky is blue and the sun is burning into your bleary, bloodshot eyes. On top of that, some misbegotten troll is stomping in your brain with football shoes, and your mouth tastes and feels like it has been used by that proverbial 5,000-pound canary as the bottom of his cage. Sound vaguely familiar? Ah, you say, that is how I felt the morning after the last evening at the High Desert Saloon. Well, you get a gold star; those are some of the classic symptoms of a hangover. Not even mentioned are the shakes, the feeling of rather intense fatigue, and a general disorientation in thought and memory, as well as a large deficit in coordination. Really a great time to go flying, no?

Just sit back and think. If you had to fly with a wingman/crewman in this condition, would you? Have you? Just what kind of chances were you taking? We are going to look at the problems a human body has in dealing with the aftermath of a *great night on the town.*

First, let's look at what your body is doing while you are drinking. If you've had six stiff shots of whiskey or eight or nine beers in the past 2 hours, your blood alcohol level is probably somewhere around 250 milligrams per 100 milliliters of blood (250 mg%), and you are walking on cotton. NATOPS used to address only the problem of how long after your last drink you had to wait before you could fly – the common wisdom being 12 hours. Yet, even *18 hours* after your last drink, your blood alcohol level is still around 50 mg% – not drunk but a long way from sober.

Additionally, your liver has been busting its hump to try and get rid of the poison you have been pouring into your system. Because of the high levels of alcohol your liver encounters, it cannot completely metabolize the molecules of alcohol it traps from the blood, so it does a halfway job and puts the byproducts into the blood for later attention. These byproducts have the ability to slow the delivery of oxygen to the brain cells and interfere with the kidney's attempts to recover much of the sodium, potassium, and phosphorous ions which are vital for proper functioning of all muscles and nerves in the body, including the heart.

Because your liver is working so hard and you are possibly engaging in some sort of physical activity, your heart rate goes up, your breathing rate increases (not because of the *fox* sitting next to you either!), and your whole-body consumption of oxygen rises dramatically.

Do you wonder why you feel so fatigued the next morning? Your body has been working overtime to rid itself of what it sees as a foreign substance toxic to normal body function. Your liver has almost shut down the transformation of body fats and other stored energy-containing substances into sugar. This is primarily because it has been trying to get rid of the alcohol and has also been using the energy it received from the metabolism of the alcohol instead of using the energy it usually derives from sugar (glucose) breakdown. But your brain and nervous system are not so lucky.

The brain and nervous system can't use alcohol as an energy source. They need glucose to function in **any** manner. Because the liver has mostly stopped synthesizing (producing) the glucose which can be used immediately by the cells of the body as an energy source, your blood sugar level is quite low. The fact you probably haven't eaten much in the last 10-14 hours doesn't help any, either. Since your nervous system is not getting enough glucose, you can't expect it to run your body's muscular systems correctly – hence, the shakes. Your brain is in the same fix, but it has help coming in the form of that first cup of coffee. That aid, however, is only temporary.

As I am sure you are well aware, considering your innumerable trips to the head, your body has lost quite a bit of water. This is because alcohol prevents your kidneys from reabsorbing water from the urine it produces. Thus, your blood is slightly thicker and will be less easily moved through your body, especially during the unusual stresses seen in flying. The blood will also be less readily available to pick up oxygen from the lungs due to marginally increased circulation time.

Since you have been enjoying the company of your friends, you also may have been enjoying tobacco smoke. Thus, you have decreased the oxygen-carrying capacity of your blood hemoglobin to the point that as much as 10 percent or more of your hemoglobin is tied up in carrying tightly bound carbon monoxide instead of oxygen. It takes *at least* 8 hours for your blood to get rid of **half** this load.

Feel pretty crummy? Just wait. The things that you do to try and feel better actually make things worse, as far as flying is concerned. The first thing you might do after you get up with a hangover is to take a couple of aspirin. That might do wonders for your headache, but it is not helping your body in other ways. The aspirin tablets you take do not disintegrate on the way down, but usually sit on the bottom of your poor, empty, abused stomach. As they disintegrate, they have a tendency to ulcerate the stomach lining and, in extreme cases, can even cause gastric bleeding. (This is easily remedied by grinding the tablets up and suspending them in a glass of orange juice.) But this is just the start.

Aspirin and its metabolic byproducts can decrease your tolerance for hypoxia by tightly binding to the hemoglobin in your blood which would normally be carrying oxygen. Significant amounts of hemoglobin are tied up in a form called methemoglobin, and this can reduce your hypoxia tolerance by over 30 percent. This problem takes longer for your body to deal with than does the one caused by carbon monoxide! In addition, that cigarette with your coffee in the morning certainly doesn't help the reduced blood oxygen problem.

Finally, the coffee you drank to get yourself going does just that, but only for a while. Coffee increases the brain activity through the stimulation of certain hormones and increases the efficiency of the heart's beating. You feel better and think better, but this effect is limited in duration. You are, to a certain extent, robbing Peter to pay Paul. In about 2 hours or less, things will be back to their pre-coffee levels. What if this happens in the air when you have to be your most alert? It is not that your body crashes and burns. It just slows down and becomes less reliable and responsive. Most often this, like the onset of hypoxia, is hardly noticeable at the beginning and most likely won't affect your flying under normal circumstances. It is for the seconds of **stark terror**, however, that you have devoted all that time memorizing NATOPS emergency procedures and/or practicing ACM. And this is just when the hangover effect will exert its greatest effect on your continued existence.

So, in summary, all this prolonged description of a hangover says is that:

- Your brain and the nerves used for fine motor coordination are doing without the adequate glucose required for their smooth functioning.
- The uptake, carrying, and release of oxygen in your blood have been **greatly** reduced by a wide variety of factors. This is true to the extent that you probably have reduced your tolerance for hypoxia by 50-75 percent, in addition to placing your body in a position where it is going to be absorbing and transporting much less oxygen no matter what the concentration of oxygen you may be breathing. Your blood is normally 97-98 percent saturated with oxygen, and with 10 percent or greater of the hemoglobin inoperative as a result of being bound with gases other than oxygen, you could be at blood oxygen concentrations equivalent to anywhere from 5,000-10,000 feet MSL even before you leave the ground. You will receive little help from 100 percent oxygen.
- The remedies you use to ease the pain of *the morning after* help you only to a limited extent. They may contribute significantly to decreased flying ability, and their onset may be as insidious as that of hypoxia.

If you feel crummy, give yourself an extra day before you fly. It is infinitely better to remain earthbound rather than end up under a nylon canopy, and that is the chance you are taking, however small it may be. BUMED has realized this, and now NATOPS has also. **Symptomatic hangover is now a grounding condition!!** Don't make a buddy make that decision for you. Make it yourself, hopefully now with a little more information to help you. ◄

LCDR M. L. "Sonny" Carter and 1st Lt Alex Dimitrew

LCDR M. L. Carter (pilot, left); 1st Lt Alex Dimitrew (RIO, right).

B

BRAVO

A two-plane flight of F-4J *Phantoms* was flying out to the carrier as part of a CV deployment fly-aboard. The flight was being led by LCDR "Sonny" Carter and his RIO, 1st Lt Alex Dimitrew, of VMFA-115. Lest you wonder why a Navy lieutenant commander is in a Marine Fighter/Attack squadron, LCDR Carter has a dual designator – both as a naval aviator and a naval flight surgeon. Dual designators are placed in a few carefully selected billets spread throughout the Navy and Marine Corps, primarily in R&D billets, with a few operational seats such as LCDR Carter's. But enough of explaining his existence – back to the story at hand!

Upon arrival at the carrier and entry into the break, LCDR Carter rolled into a 40-degree bank at 300 KCAS and 800 feet MSL. The gear extended normally, but when the stick was positioned to roll wings level on the downwind leg, the *Phantom* did not respond to right stick inputs and continued in a descending left turn. Full right stick resulted only in a lateral jerk with no decrease in bank angle. As full military power was applied, 1st Lt Dimitrew provided timely attitude and altitude information.

By this time the crew had determined that the AOA was stuck at 15 units and the airspeed reading was erroneous. These two failures, combined with serious controllability problems, served to produce a highly complex, dangerous situation that required superlative crew coordination and expertise. While descending through 500 feet, LCDR Carter applied full right rudder, which produced a smooth right roll followed by an abrupt rise of the aircraft nose. No telelights were evident. Altitude calls were provided at 100-foot increments by

1st Lt Dimitrew until the F-4 commenced a positive rate of climb at 200 feet MSL. The nose continued to rise, slicing approximately 5 degrees from side to side in what appeared to be an approach to a stall. LCDR Carter rudder-walked the aircraft to maintain a wings-level attitude as he climbed through 1,200 feet on the downwind leg.

The RIO informed LCDR Carter that the left spoiler was deflected about 10 inches with occasional rapid cycles up and down. It was determined that the aircraft was controllable, but cycling the SPC (static pressure compensator) switch had no effect upon the airspeed and AOA indicators. Left stick inputs produced 4-5 degrees left wing down followed by a left nose slice and loss of right lateral authority. Right rudder was required to roll the aircraft wings level. Airspeed and AOA indicators continued to provide erroneous information in both cockpits.

With LSO assistance in providing airspeed confirmation, an extended straight-in approach was flown to a flawless OK-2 wire arrestment.

The airspeed indicator failure resulted from a foreign object (a bug) in the pitot-static pressure system. The AOA failure was a mechanical malfunction resulting in a stuck indicator. The simultaneous failure of both flight indicators, combined with a flight control malfunction (left spoiler actuator failure) at low altitude, demanded immediate action to maintain control of the aircraft. The professionalism displayed by LCDR Carter and 1st Lt Dimitrew during this severe emergency demonstrated outstanding aviation skill and coordination. The serious nature of an F-4 stuck spoiler, combined with the low altitude, provided an extreme potential for disaster.

LCDR Ron James and LCDR Dan Archer

LCDRs Ron James and Dan Archer of VR-24, NAS Sigonella, Sicily, had completed the first leg of their logistic flight, landing aboard the USS SARATOGA in their C-2A *Greyhound*. After offloading their cargo and mail, they loaded the passengers and cargo and prepared for their return flight to Sigonella. In tension on the No. 1 catapult, all engine instruments indicated normal. Upon the catapult stroke, however, the C-2's port generator MASTER CAUTION light illuminated and the port engine shut down. As the aircraft departed the ship's bow, the C-2 swerved to the left and experienced a pronounced altitude loss. With the landing gear on the way up, the autofeather system feathered the port propeller as the pilots confirmed that the port engine had shut down.

LCDR Archer, the pilot at the controls, immediately set the aircraft up for single-engine flight. Through precise coordination with the aircraft commander, LCDR James, he began a single-engine climbout. As the *Greyhound* stabilized at about 30 feet off the water, the air boss contacted the plane guard helo to be ready for SAR should the C-2 not recover.

After what seemed an eternity, the C-2 began to climb through 100, 300, 500 feet, and finally, at 1,000 feet, the crew began to breathe more easily. Prompt and proper cockpit coordination and communication continued until the aircraft reached 6,000 feet. At that time, the pilots successfully completed an air-start of the failed engine. They then Bingoed to the nearest suitable airfield.

The superb efforts of LCDR James and LCDR Archer are an outstanding example of individual abilities and professional teamwork. Their exceptional aeronautical skills, combined with their knowledge of NATOPS procedures, cockpit coordination, and professionalism saved the Navy a valuable aircraft and prevented the passengers and crewmembers from being exposed to a ditching.

Z

ZULU

Near Midairs

By LCDR Paul Eschenfelder
VP-67

AMERICANS are great at sloganeering – cutting to the heart of a subject with wit and nerve. The Navy has a number of old sayings, one of which is: "A collision at sea can ruin your whole day." On a slightly higher plane, the aviation community is fond of quoting the Supreme Court decision in White vs. United Airlines: "Aviation, in itself, is not inherently dangerous. However, even more so than the sea, it is terribly unforgiving of any carelessness, incapacity, or neglect."

Today, we live in the age of the "Ident" function – IFR, positive control, motion through the sky in our own little block of private airspace, protection from intrusion by all others. The cocoon of radar contact wraps us warmly and securely and keeps us safe. The Safety Center recently made available to VP-67 data concerning reported near-midairs by P-3s during the period 1975-1980. The results are astounding. This survey includes reported incidents only; the number of near-misses soundly cursed and then forgotten can only be imagined.

During this 5-year period, 126 P-3 near-misses were reported to the Safety Center. The conflicting aircraft ran the gamut from B-747s and DC-8s to Cessnas, Pipers, and even home-builts. The military was extensively represented as well. Near-misses occurred with all types of military aircraft – fighters, helos, even other P-3s!

Of all the incidents reported, only four could actually be classified as occurring during the en route phase of flight, i.e., well above 10,000 feet. Even in these four, one or both of the aircraft were changing altitudes. The vast majority reported, 118 incidents, occurred in terminal areas, either during takeoff, climbout, descent, or landing. The lion's share of these incidents, 54, occurred in the area of, you guessed it, Moffett Field. The San Francisco Bay Area is notorious for its overcrowded skies and light airplane traffic skirting just around the TCA at all altitudes, in all weather conditions, talking with and seeking the approval of no one. Almost none of the near-miss traffic appeared on a controller's radar scope. The reasons for this are various: non-transponder-equipped aircraft, aircraft with inoperative or turned off transponders, aircraft flying below radar coverage, etc. ATC radars have a notable lack of ability to pick up targets that aren't beacon-enhanced. The ability to display primary or "skin painted" targets depends on several factors: the size of the target, the distance from the radar site, and the aspect and the direction of movement the target presents to the radar site.

The ATC radar's computer is also designed to drop out targets moving below a certain speed. In a near-miss between a P-3 and a glider in the Bay Area, the glider was not displayed on radar either because it was too small a target or its groundspeed was below the computer's threshold.

Another factor affecting targets displayed on the controller's scope is the mode in which the controller is operating. He can select a function which will inhibit certain transponder codes, such as the 1200 VFR squawk.

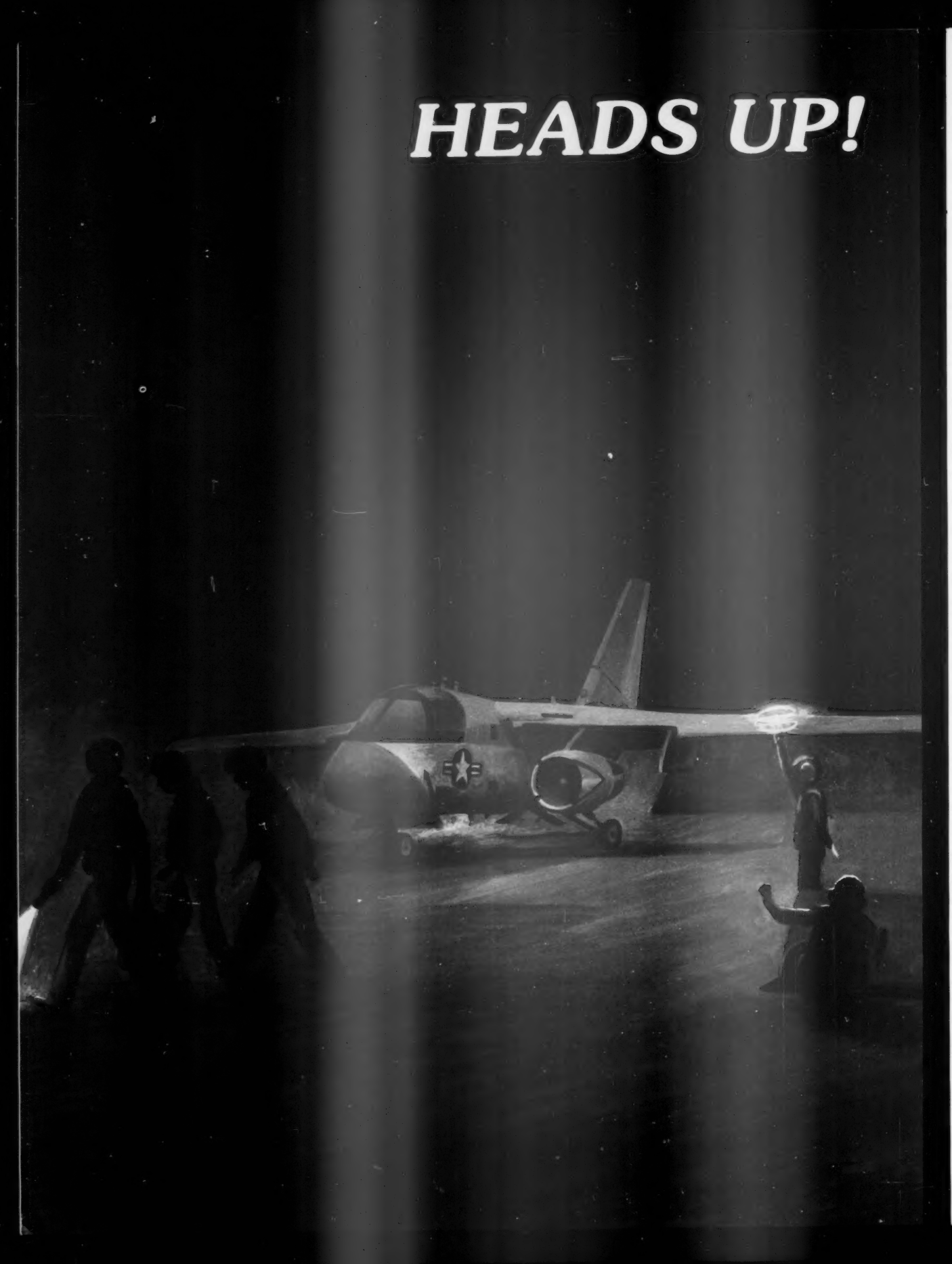
The survey also notes several instances of potential midairs caused not by coincidence or neglect but seemingly by intent. In one incident, a P-3 operating in IMC barely missed a Cessna that popped out of the clouds right in front of it. When ATC was questioned, it became apparent that the Cessna was operating in IMC without a flight plan. In another incident, a P-3 on an approach to an airfield in Southern California was "jumped" by a small sport biplane which maneuvered to execute gunnery runs on the P-3.

The most insidious of all potential midairs were those based on failures in communication between ATC and flightcrews. Instructions were either issued or read back incorrectly, and the opposite party failed to challenge the mistake.

Although the Bay Area produced the most reported incidents, the remainder (72 incidents) were fairly evenly spread throughout the balance of P-3 operating areas. Brunswick had a surprising showing considering it is not located in a heavy air traffic area. Jacksonville, Willow Grove, Barbers Point, Chicago – all had several reported incidents. Also reported were incidents in operational areas in WESTPAC and the Mediterranean. The ASW environment was not incident-free, either. Supposedly "coordinated" operations with other aircraft led to quick maneuvering to avoid collisions between P-3s and helos, other P-3s, and even A-7s. Involved in the ASW problem, the crews had simply lost track of their playmates.

This is all very interesting, but so what? Review of this analysis leads to the conclusion that the best collision avoidance system is an alert crew. With a minimum of three people in the cockpit, all three should be actively involved in collision avoidance by both looking outside and alertly monitoring conversations between controllers, crewmembers, and other aircraft. VP-67 maintains a standardization notice requiring the flight engineer to wear a headset and monitor the ICS and radio during the departure and arrival phase of each flight. Due to the positioning of the engineer's seat, he is afforded a more panoramic view of events outside the cockpit than either pilot. Also, during that portion of flight when a fourth person is allowed in the cockpit as an observer, he should also wear a headset. In several incidents, the cockpit observer, though not directly involved in operating the flying machine, was responsible for first spotting converging traffic.

The decision is yours. Either you trust your life entirely to a computer or radar scope – or you look out the window, listen to radio transmissions, and *run your own flight.* ◄


HEADS UP!

By AW2 T. D. Batey
HS-12

OUR squadron of SH-3Hs was deployed aboard an aircraft carrier. We were tasked with plane guard, ASW, and certain types of logistic support. My place in this squadron is that of an aircrewman – to be more specific, a First Crewman. It is not my intention to enlighten anyone on our mission but rather to describe the events prior to a launch on a somewhat different mission (a mission I almost didn't make).

Our brief time was 0330. The crew was mustered, and a last-minute change was made to the Second Crewman position. I was to replace the junior Second Crewman. The change was made to preclude any difficulties the more junior crewman might have had. The man in the First Crewman position was our AW Chief. He would be tasked with the more difficult part of our mission, which was to go to two target hulks and fire up the generators and other associated equipment.

If the chief couldn't get the gear going, we were carrying two passengers who, with all their expertise, could surely get the gear to work. My job in this evolution was to brief the passengers and fit them with helmets and flotation gear. Also, once on station, I was to do all hoisting required to get the men on the target hulks and back safely. I almost failed in getting them to the aircraft!

The anticipated problems would be those of any stripped hulk, with no power, at the mercy of sea state and swells. There was no crew on these hulks, so we would be all alone.

Back at the readyroom, we were all listening attentively to our weather brief and all other information that was being presented. The HAC (Helicopter Aircraft Commander) gave the crew a brief and covered all areas one might encounter while flying in our aircraft, as well as what one might expect while riding the hoist from our aircraft to the target hulk. The passengers briefed our crew on what to expect once the hulks were boarded.

With all briefing done, I went to the locker room to get my swim gear. (I hadn't expected to be the swimmer.) Returning to the readyroom, I also signed out a camera. Feeling satisfied that I had all the gear I needed to complete any mission, I then escorted our two passengers to the Aviation Support Equipment Shop. There they were fitted with helmets. A flotation device was procured for each man, and after a short brief on both items, we were all set.

The mission we were tasked with was a bit out of the ordinary. That, along with the feeling that we might be late, caused me to jeopardize three people's lives and unnerve an entire flight deck crew.

As a crewman in helicopters on an aircraft carrier, you are usually the first aircraft to launch and the last one to recover. The cycles in between are fast and furious. It is no place for a launching helo and crew, so we try to get off the deck quickly.

This was not to be the case this day. It was about 0425 when all needed gea. was procured and fitted. We (myself and the two passengers) left the Aviation Support Equipment Shop and a fully lit space for a catwalk and a wall of darkness. I switched on my white lens flashlight and began the trek I had taken many times before. That's when it happened! Complacency kicked in. This was my second cruise on the same ship, with the same layout, so on and so forth. The helo would be spotted on the angle – spot three, four, five – what did it matter? They were all in the same general area!

Making sure my passengers in tow did indeed make it up the first ladder, I shifted my load (swim gear, helmet bag, and camera) and lit the way. With my flashlight and eyes on the deck, I made my way down the port catwalk. One more ladder and we would be there. Still keeping my eyes and flashlight on the deck, we made it to the flight deck.

With all of us on the flight deck I finally looked up, and much to my surprise, no helo. Check 'em – spots three, four, five – **empty**! What the . . . ? (Looking towards the bow, I spotted a helo.) "Oh, there it is!"

Lighting the way for myself and my passengers so as not to trip or fall on the cat tracks, and hurrying not to be late, I walked all three of us across a loaded catapult. At one end was an S-3 – at the other end, three fools. Everything was just right! I had just set up three people to die!

A very alert cat officer caught the three fools making their way diagonally across the deck and toward the bow. It wasn't until we were almost across the deck that I picked up the wands and lights associated with a night, fixed-wing launch.

I looked at the tower, and among the lights, I made out a rotating green light. Then it happened. I got sick to my stomach. With great disbelief in what I had just done, I made my way through the flight deck crew. I almost lost it all right then and there. My passengers had no idea what had happened, but I knew all too well. In no time at all, we were ushered up to see the air boss. I had very little to say except that I was responsible for the two men with me, and they knew next to nothing about the flight deck. He put it bluntly; I was almost responsible for their deaths.

If it had not been for an alert cat officer, we would be statistics now. The cat officer was on his last stage of launching that S-3. A drop of the wand and that was it – a command, an action that could not be stopped by anyone. We would be dead!

I had just violated the number one rule of carrier ops: HEADS UP AT ALL TIMES. I can only thank the cat officer for being heads up.

I regained the respect I had lost for the flight deck. I hope you never lose that respect. Think before you do that next piece of work or take that next step. No matter how many times you've done it before, there is always room for the unexpected. ◄

STRESS COPING

By Robert A. Alkov, Ph. D.
Naval Safety Center

TO talk about stress, we first need to define it. According to Dr. Hans Selye, the world's leading authority on stress, "Stress is the nonspecific response of the body to any demand made upon it." Stressors are those events that occur in our environment that make these demands. The problem is one of determining cause and effect.

Stressors Defined. A stressor may be a physiological, mental, or psychological demand. Physiological stressors from the environment may include such things as temperature and humidity extremes, noise, vibrations and, for the aviator, the lack of oxygen and lowered barometric pressure at high altitudes. Mental stressors may occur through concentrating on a problem, studying for an exam, or attempting to finish a report under the pressure of a deadline. Psychological stressors may occur at home or on the job, during recreation or any other activity in which we find ourselves. These stressors include such things as an illness in the family, financial problems, pressures on the job, or the desire to obtain a promotion or a desired billet (i.e., stressors may be self-generated). In this article, we will concern ourselves only with psychological stressors.

According to Dr. Selye, everyone is always stressed to some degree. He says that the absence of stress is death. He feels that many of the pleasurable things in life are also stressors, since we have to cope with them in some way. In fact, some stress is good for you in that it keeps you on your toes and prevents boredom and complacency from setting in. This helps prevent accidents. Too much stress, on the other hand, can cause you to become error and accident prone.

Effects of Stress. Our perception of a stressor causes us to ready ourselves to cope with it by marshalling our bodies' resources for action. These bodily reactions involve the release of chemicals into the bloodstream to make blood clotting easier. The metabolism in the muscles of the arms and legs is speeded up to prepare us to *fight* or to *flee* – whatever action is required to survive. The blood is shunted away from the stomach and digestive tract in order to supply the muscles. The glucose level in the blood is increased. Heart rate, respiration, blood pressure and sweating all increase. This is the *alarm* state, according to Dr. Selye's theory of the General Adaptation Syndrome.

The effects of stress are cumulative over time. As we adapt to ongoing life stressors, we learn to cope with our stresses. This is Dr. Selye's *adaptation* phase. If we continue to be loaded with stressors over a prolonged period of time, however, we eventually reach a stage of *exhaustion*, according to Dr. Selye. Our bodily resources then collapse from fatigue, and we get sick. This sickness can manifest itself in several ways: physical, mental, or behavioral. Most of us are in situations that occasionally require us to sit and take it from our bosses, our spouses, or whomever. We can't always react by fighting or running away. But by continually preparing ourselves to *fight or flee* and by not having the opportunity to act to burn up all the energy being supplied to our muscles, bad things can happen to us physically. The blood supply rushing to the muscles leaves the stomach blanched. That is, the capillaries in the stomach's lining become constricted, leaving the normally healthy pink color a sickly white. The stomach's digestive juices may then start to digest the unprotected stomach lining and cause ulcers.

In the cardiovascular system, high blood pressure, strokes, and heart attacks can result. In the respiratory system, diseases ranging from hay fever and asthma to pneumonia and tuberculosis can occur as a result of unrelieved stress. It is suspected that stress may play a causal role in cancer. Stress, or the inability to adequately cope with it, may also lead to suicide, divorce, career difficulties and even mishaps.

Stress Coping Styles. Stress handling techniques vary considerably from individual to individual. People experiencing stress from the everyday life changes that are part of the aging process may react in a variety of ways depending on each person's particular personality. Our psychological coping strategies may be healthy and adequate to deal with the various problems, or they may be inappropriate and lead to greater stress through a series of self-imposed stressors. For example, when we are frustrated in achieving the goals we have set for ourselves, we experience stress and this will often lead to aggressive behavior. Aggression is regarded as an inappropriate stress-coping strategy in a civilized society.

The inappropriate stress-coping strategies typically employed by most people may take one of two forms, depending upon whether they are introverts or extroverts. Introverts turn their feelings inward and withdraw from others. Their behavior may be self-destructive and ultimately lead to their own death. This may take the form of alcoholism, substance abuse, mishaps, or even suicide. On the other hand, extroverts may take out their frustration through aggression directed outwardly. This may lead to interpersonal problems, divorce, child abuse, assault, homicide and, again, mishaps (aggression directed at a machine).

Symptoms of Inadequate Stress Coping. Individuals who turn their aggressive feelings inward often demonstrate the emotional symptoms of depression, preoccupation, sadness and withdrawal. Physical symptoms may show up as headaches,

and aircraft mishaps

insomnia, appetite changes, weight gain or loss, indigestion, nausea, vomiting, diarrhea, or constipation. Behavioral symptoms include hypochondria (preoccupation with illness), self-medication, a reluctance to accept responsibility, tardiness, absenteeism, poor personal appearance, and poor hygiene. Introverts' self-destructive behavior may lead them into alcoholism, drug abuse, overeating, suicide, or mishaps. Any one individual will **not** exhibit **all** of these symptoms but may exhibit one or more of them.

Extroverts tend to respond to stress and frustration with aggression directed toward other people or inanimate objects. Their emotional symptoms may show up as overcompensation, denial, suspicion, paranoia, agitation, restlessness, defensiveness, excess sensitivity to criticism, argumentativeness, arrogance, or hostility. Behavioral symptoms include desperate "acting-out" (a cry for attention). These individuals tend to abuse alcohol and drugs, get into fights, get traffic tickets, gamble, fall into indebtedness, and may even become child or spouse abusers. Symptoms of their inadequate stress coping may show up as difficulties with interpersonal relationships and as mishaps.

Life Changes as Symptoms. Many of the factors that are named on "Life Change Scales" or "Social Readjustment Inventories" are really *symptoms of stress rather than stressors themselves.* Seen in this light, *mishaps may also be a symptom of inadequate stress coping strategies.* Typical military aviators are extroverted, aggressive individuals. It would be expected that they would respond as the extroverted individuals described above when not adequately coping with their stress. In other words, they would have interpersonal problems, marital difficulties and disciplinary problems. They would also tend to cause mishaps.

Results of a Psychological Questionnaire Study. In order to test this hypothesis, a psychological questionnaire was sent out to the flight surgeon member of all major (Class A) aircraft mishap boards, regardless of the cause of the mishap. The questionnaire was to be completed on the involved aviators. The questionnaire consists of 22 questions covering lifestyle changes and personality variables. During calendar year 1979 and 1980, 585 questionnaires were sent out. Of these, 501 were returned. The returned questionnaires were divided into two groups of aviators: those who had an aircrew error factor assigned and those who did not. Several aviators were involved in mishaps where the cause was undetermined, and these questionnaires were not used. Two hundred forty-eight questionnaires were assigned to the at-fault group and 230 to the not-at-fault group. A statistical test (the Fisher-Irwin Exact

Aircrewmen who were at fault in an aircraft accident were more likely than those not at fault to have:

	Statistical Significance
Had marital problems	.02*
Shown signs of immaturity and instability	.03*
Recently become engaged to be married	.04*
Been making a major career decision (such as getting out of the service)	.0017**
Been having difficulty with interpersonal relationships	.0047**
Recently had trouble with superiors or received disciplanary action	.0029**
Recently had trouble with peers or others	.028*

* Significant at better than the .05 level of confidence
** Highly significant (at better than the .01 level of confidence)

Table 1

Test) revealed that individuals named as contributing cause factors to their mishaps were more likely to have been involved in making a decision concerning their future (i.e., whether to get out of the service or to stay for a career) and more likely to have recently become engaged. But of even greater interest is the finding that these individuals were much more likely to have marital problems, trouble with superiors, peers and others, and difficulty with interpersonal relationships in general (see Table 1). This supports the hypothesis that aircrewmen assigned as cause factors in aircraft mishaps are more likely to show symptoms of inadequate stress coping strategies. This appears through their "acting out" of their aggressive behavior (directed towards others) rather than internalizing it.

Healthy Stress Coping Strategies. How can you go about handling your stresses in more appropriate ways? First, ensure that you are physically fit. A checkup might be useful. Get plenty of rest and maintain a balanced diet. Stay away from alcohol and drugs. Exercise regularly, but be careful of competitive sports. These can increase your stress level significantly, especially if you are the competitive, aggressive type. Try jogging, cycling, or swimming instead. Exercise at least three or four times a week. This will help you get into shape to be better able to resist stressors.

Next, learn to manage your time better so you don't find yourself having to rush to meet deadlines, appointments, etc. Then set priorities for your tasks and goals to cover the most important things first, table some tasks for later consideration, and forget those that are not important or necessary.

Having a realistic self-image helps enormously. Try to discover your strengths and weaknesses. Take advantage of those strengths by attacking goals you know you can achieve. Don't beat your brains out and waste time on things you know deep down you probably won't achieve. They will just frustrate you. This is a process of successful maturation, of course.

Finally, don't hesitate to seek professional help from your flight surgeon, counselor, minister, etc. if you can't solve your own problems. These specialists can introduce you to a variety of techniques – including biofeedback and meditation – that can teach you to relax. Books on these topics are available in your ship's or naval air station's library.

Conclusion. If you (or someone you know and care about) are showing any of the symptoms of inadequate stress coping described here, take steps today to drop those inappropriate strategies and get into a pattern of coping that will enable you to do your job better, feel better about yourself, avoid costly, painful (and sometimes fatal) mishaps, and improve your family and personal life. You'll find it very worthwhile.

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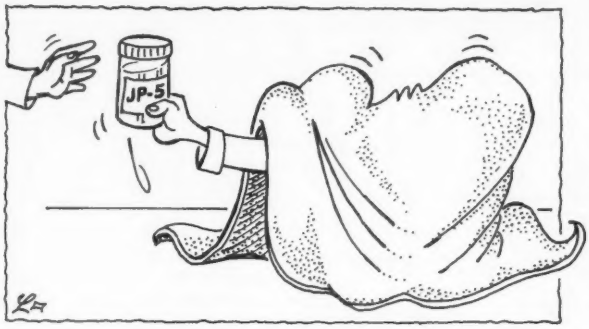
Editor's Note – Dr. Alkov has been studying the effects of life stresses on the Navy/Marine Corps human-error aircraft mishap rate for a number of years. This article is a summary of his latest findings in this area.

"JP-5 cocktail, please...*and hold the water!*"

By LT Colin Sargent



I'D never seen a double flameout before, and the silly look of the white needles descending slowly to the bottom peg of my N_g indicator stunned me for a second. *What's going on?* I continued staring at the black dials of my H-46 (standard issue, Navy, 1967), wondering why bad news always seemed to happen to me – in slow motion! Watching all your luck swirl counterclockwise, forever toward zero, can be very disconcerting, especially when there's nothing, absolutely nothing, you can do about it.

You see, I was not flying on fumes through the rain forests of Vietnam, conducting adagio swoops over enemy territory, or dodging missiles aimed at my National Defense medal. I wasn't even hoisting a drowning survivor up my 600-pound test rescue cable! Instead, I was doing something just as dangerous, and possibly quite a bit more foolish. I was at the controls of a *Sea Knight* fueled, at least in part, with cool, refreshing, sparklingly clear water, the result of a fuel storage tank problem in the engineering spaces of our mother ship. A fluid known in other quarters as "life's blood," water is patently and famously unable to combust properly in a T-58 engine, as anyone who's tried it will tell you, often with a smile.

Luckily, everything was going to be all right. True, I had lost both engines, but I wasn't about to fall out of the blue heavens at 32 ft/s^2, since I was merely conducting a routine, postflight engine wash on the ship's flight deck. There wasn't even a storm threatening to make my emergency more dramatic, and the sea was embarrassingly calm. In fact, the only initial procedure I had to execute was to motion wildly to our air detachment's maintenance chief. He rushed from the hangar (after donning cranial and vest, of course) to the helicopter in a span of time called, variously, by writers of children's stories, *a twinkling.*

Hours of troubleshooting later, after every fuel line in the aircraft had been painstakingly purged, the truth was proclaimed to every corner of Christendom, the mess decks, and the wardroom: **BLACKBIRD 07 was partially fueled with water!**

"Now wait a minute," I said to myself, "I distinctly remember not only looking at the fuel sample but even tasting the liquid to make sure it was OK." As a matter of fact, I was known to be a stickler for a good fuel sample, as were all the pilots in the detachment. Several times during the cruise, I'd been forced to give fuel samples the *thumbs down* for having air bubbles, miscellaneous flecks of metal, or slivers of rubber swirling in the glass jar. (Why is it, by the way, that the further a pilot gets from flight school, the smaller the bits of dust in a fuel sample seem to be?) In any case, I walked back to the fuel locker to see if the fuel sample jar had been emptied, as it should have been, after the conclusion of flight operations. Wonder upon wonders, when I arrived at the scene, I found a jar full of sweet, combustible JP-5! My brain slowly began to evaporate. Finally, after several minutes of intense, 5 million candlepower interrogation, the tearlessly guilty member of the ship's fuel party (usually the *creme de la creme* of ship's personnel) mumbled the admission that, since we helicopter pilots were so *picky* about fuel samples, a flawless, *permanent* sample of JP-5 was kept on hand (hidden in a blanket) to dust off and show the pilots whenever there was a high-tempo VERTREP operation going on and there "wasn't enough time" to properly prepare a sample. (There is an identically perfect JP-5 sample kept in the Greenwich Observatory in London, along with a myriad of other standards of weights and measures, should you desire a replica!)

After the sky had finished softly exploding above the ship, disciplinary action briskly followed, in concert with some heart-rending recriminations. The ship's fuels officer was "really sorry" one of his men (a first class petty officer!) had given the rest of the fuel party **standing instructions** to produce the phoney sample whenever the going was fast and furious. "In fact," continued the fuels officer, "the offending petty officer has been moved from the fuel team to the *fire party* (instead of the frying pan) until he can evince more operational responsibility." Imagine my gratitude!

A good fuel sample is worth more than its weight in JP-5. It's terribly important to make sure the one you're looking at is a sample of the fuel that's in **your** aircraft. Otherwise, you too will see those N_g needles on their way calmly down to zero, your whole life (and all those "I Love Lucy" reruns) passing slowly before your blue eyes, and the ocean quickly rising up to meet you, at a speed, as I have mentioned, close to 32 ft/s^2! Sometimes, a fuel sample is *less* than what meets the eye. Ensure all procedures leading up to your 5-second look at that sample are being properly carried out – it sure beats treading water (and reading condolence cards from your local fuels officer). ◄

LETTERS
to the editor

Survival Equipment Training

Point Mugu, CA – I would like to congratulate LCDR James Novitzki on his article ("STANDDOWNS: Where to Go for Help") in the FEB '81 issue. With the proper materials, a safety standdown can do more than just fulfill a requirement.

LCDR Novitzki did a fine job of listing sources of safety information. Another source is the Naval Air Systems Command's FAILSAFE (Fleet Air Introduction/Liaison of Survival Aircrew Flight Equipment) Program. One of the goals of the program is to provide the aircrewman with training on proper use of Aviation Life Support Systems (ALSS). This training is now being provided by special operator training packages (slides with texts, movies, videotapes, etc.) which are distributed to all aviation physiology training units, water survival training sites, and aeromedical safety officers. All are willing to make squadron presentations with the packages to demonstrate new survival gear and how to use it properly.

An item of survival equipment used improperly can be as useless to an aircrewman in an emergency as one which fails. The FAILSAFE program is designed to give the aircrewman the best possible chance to become a survivor.

CDR Douglas W. Call, MSC
Pacific Missile Test Center

Re: "Mast-Ectomy" MAR '81

Alexandria, VA – I am employed as circulation assistant in the library for the Center for Naval Analyses. My job, or part of my job, is to screen the tables of contents of the journals we receive so I can cite pertinent articles in our weekly bulletin.

After 7 years of working here at CNA, I am appalled to read your article; the title has sickened me. It was without a doubt the worst choice of article titles you could have used. I wonder if you know how many people you have offended. Why would someone want to do this?

Ms. Dorothy Goodis
Center for Naval Analyses

● **The article title was used not only to gain our readers' attention but because it is a rather exact description of the phenomenon discussed in the article – catastrophic loss of a helicopter rotor mast. Any offense taken certainly was not intended.**

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: *APPROACH* Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Re: "The Case for Silent VERTREP" JUL '81

USS LEXINGTON (AVT 16) – Having just completed a 7-month deployment to the Indian Ocean and Mediterranean as medical officer aboard the on-station MLSF (Mobile Logistics Support Force) ship, let me add a hearty "well done" to your article about silent VERTREP. Putting aside the obvious tactical edge it provides, silent VERTREP proves to be a very safe evolution, even when carried out under less than ideal sea state/weather conditions.

Speaking as a flight surgeon in touch with H-46 *Sea Knight* pilots, silent VERTREP is preferred and actually does increase the efficiency for at-sea replenishment. It improves concentration and lessens fatigue during carrier group replenishment "hits." Let's hope silent VERTREP will be the standard rather than the exception for MLSF operations in the future.

LCDR J. F. Graves, MC
Senior Medical Officer

Mistaken Identity

WE owe an apology to LT Julius Longshore! In the MAY '81 *APPROACH* BRAVO ZULU, page 11, we incorrectly identified LT Longshore as LT Longfellow. The aircraft he was flying was an E-2C. Again, LT Longshore, our sincere apology for the error.

RECIPE:

BAR-B-QUED CHEF

Just add fuel to charcoal fire when it has been lit.

☆U.S. GOVERNMENT PRINTING OFFICE: 1981—735-003/14

On the flightdeck

YOU ARE FOD

PHAN William Flynn

Stay alert and stay alive.

Naval Safety Center
NAS Norfolk, Virginia

A "pinky" flight
is a beautiful sight,
when the weather's
smooth and fair,
But while it's still light
up over the night...

It's
already
dark
down
there.

Naval Safety Center
NAS Norfolk, Virginia